

Regulatory Guide Periodic Review

Regulatory Guide Number: 1.61, Revision 1

Title: DAMPING VALUES FOR SEISMIC DESIGN OF NUCLEAR POWER PLANTS

Office/Division/Branch: RES/DE/SGSEB

Technical Lead: Marcos Rolon

Staff Action Decided: Revise

1. What are the known technical or regulatory issues with the current version of the RG?

Regulatory Guide (RG) 1.61, "Damping Values for Seismic Design of Nuclear Power Plants", Revision 1, issued in March 2007, specifies the damping values that the U.S. Nuclear Regulatory Commission (NRC) staff considers acceptable for complying with the agency's regulations and guidance for seismic analysis.

The staff review has identified the need to update regulatory position C.1.2 for consistency with the "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants,"(Ref. 1), Section 3.7.2 (Revision 4), subsection II.3.C which includes additional acceptance criteria related to the concrete properties and damping values for use in the development of in-structure response spectra (ISRS). The revision will also consider as needed, revisions under consideration in the update of consensus standards for seismic analysis and design of nuclear power plant structures such as ASCE 4-98 (Ref. 2).

2. What is the impact on internal and external stakeholders of not updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

Given the existence of the additional acceptance criteria in SRP 3.7.2 there's no immediate impact on the ongoing and anticipated licensing activities. However, to ensure consistency between RG 1.61 and SRP 3.7.2, RG 1.61 should be updated promptly.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contract resources?

NRC staff requires approximately 0.2 FTE to complete a full revision of Regulatory Guide 1.61.

4. **Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?**

Revise R.G. 1.61 in light of the current staff positions contained in SRP 3.7.2 Revision 4.

5. **If a RG should be revised, provide a conceptual plan and timeframe to accomplish this.**

1. Identify the portions of RG 1.61 that need revision.
2. Identify dependencies between any items both within the RG itself as well as between other RGs.
3. For any additional technical problems that may arise based on this review, identify which may be already addressed in other RGs by performing a literature review or calculations as necessary to address the problem.
4. Review the revised RG to ensure agency program guidance for RGs is met.
5. Transmit to the Regulatory Guidance and Generic Issues Branch for processing approximately 1/31/2016
6. Issuance for public comment in the *Federal Register* estimated for the end of Qtr. 3, FY 2016.

References:

1. U.S. Nuclear Regulatory Commission (NRC), NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 3.7.2, "SEISMIC SYSTEM ANALYSIS," Washington, DC.
2. American Society of Civil Engineers (ASCE) 4-98, "Seismic Analysis of Safety-Related Nuclear Structures and Commentary," 1998.

NOTE: This review was conducted in April 2015 and reflects the staff's plans as of that date. These plans are tentative and are subject to change.